

IWBAT

- define simple interest
- understand simple interest and the formula $I = prt$
- practice computing a balance in an account incorporating interest.

Banking: Simple Interest

Interest - A charge for borrowing money given as a percentage of the amount borrowed

Simple interest - Interest is calculated only on the principal

$$I = prt$$

$$P = \frac{I}{RT}$$



$$\frac{I}{PT} = R \quad T = \frac{I}{PR}$$

Total value = $p + I$
(Future value)

$$\begin{array}{r} \$6700 = \$3500 + I \\ \quad \quad \quad - 3500 \\ \hline \$3200 = I \end{array}$$

IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.

Banking: Simple Interest

Five year old Johanna deposits \$100 of Christmas money in a savings account which pays 3% simple interest. With no further deposits or withdrawals, how much will her account be worth at Christmas when she is 18?

IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.

Banking: Simple Interest

Compounding period	How often interest is added
annually	1 time per year
semiannually	2
quarterly	4
monthly	12
weekly	52
daily	365

IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.

Banking: Simple Interest

Jessy deposits \$300 in a savings account which pays 3% simple interest compounded monthly. With no further deposits or withdrawals, how much will the account be worth in eight years?

$$\begin{aligned} I &= \\ P &= \$300 \\ R &= 3\% \\ T &= 8 \text{ yr} \end{aligned}$$

$$\begin{aligned} I &= PRT \\ &= \$300 \times 3\% \times 8 \text{ yr} \end{aligned}$$

$$I = \$72$$

$$FV = \$72 + \$300$$

$$FV = \$372$$

$$\begin{aligned} I &= PRT \\ &= \$300 \times \frac{3\%}{12} \times 8 \text{ yr} (12 \text{ yr}) \end{aligned}$$

$$= \$300 \times 0.25\% \times 96 \text{ mo}$$

$$I = \$72$$

Periodic Interest Rate

$$\left(\frac{\text{APR}}{n} \right)$$

n = number of compounding periods per year

IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.


Banking: Simple Interest

Define simple interest in your own words.

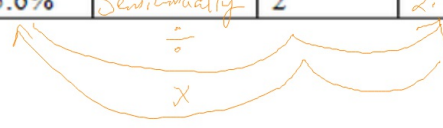
IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.

Banking: Simple Interest

Practice: 4.1.2



	Simple Interest Rate <i>APR</i>	Frequency of Simple Interest Calculation	Number of <i>n</i> Periods per Year	Periodic Interest Rate	Number of Years	Total Number of Periods
Example	3.5%	Annually	1	3.5%	5	5
1. CD A	4.4%	Quarterly	4	1.1%	12	48
2. CD B	7.2%	Monthly	12	0.6%	8	96
3. CD C	5.6%	Semiannually	2	2.8%	15	30



IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.

Banking: Simple Interest

Practice: 4.1.2

$$I = PRT$$

$$P = \frac{I}{(RT)}$$

$$FV = P + I$$

	Principal <i>P</i>	Periodic Interest Rate <i>R</i>	Number of <i>T</i> Periods	Interest Earned <i>I</i>	Future Value of Principal <i>FV</i>
Example	\$8000	0.4%	60	\$1920	\$9920
4. Deposit A	\$6000	2.4%	14		
5. Deposit B		1.3%	16	\$1872	
6. Deposit C	\$7000	0.5%	72		

IWBAT define simple interest, understand simple interest and the formula $I = prt$, and practice computing a balance in an account incorporating interest.

Calculate simple interest

05/01/17

Justina opened a savings account with a deposit of \$1,000. Saving for college, she left the money untouched from the time she was 12 until she was 18. This account paid 3.6% annual simple interest compounded quarterly. How much did Justina have in this account for college when she was ready to withdraw the funds?

$$fV = P + I$$

P \$1000
 R 3.6%
 T 6 yr
 n 4
 I

$$\left(\frac{3.6}{100}\right) = 0.036 \quad \left(\frac{0.036}{4}\right) = 0.009$$
$$\$1000(0.009) = \$9$$
$$\$9(24) = \$216$$
$$fV = \$1000 + (1000)\left(\frac{0.036}{4}\right)(24) \Rightarrow \frac{\$1000}{\$1216}$$

Banking: Exponential Growth

IWBAT evaluate exponential expressions and define the concepts of exponential growth and exponential decay.

Banking: Exponential Growth

Review of exponents

$$f(x) = b^x$$

$$\underset{1}{b} \cdot \underset{2}{b} \cdots \underset{x}{b}$$

Banking: Exponential Growth

$$f(x) = a * b^x$$

a = initial amount (principal)

b = rate of change

x = time (number of periods)

Growth: $b > 1$

Evaluate:

$$a = 500$$

$$b = 1.05$$

$$x = 24$$

$$f(24) = 500(1.05)^{24}$$

$$f(24) = 1612.55$$

Rate of growth
 $1.05 - 1 = 0.05$
5%

Decay: $0 < b < 1$

Evaluate:

$$a = 500$$

$$b = 0.65$$

$$x = 24$$

$$f(24) = 500(0.65)^{24}$$

$$f(24) = 0.016177$$

Decay
 $0.65 - 1 = -0.35$
35%

IWBAT evaluate exponential expressions and define the concepts of exponential growth and exponential decay.

Banking: Exponential Growth

Rice problem

Linear growth:

Day 1: 1 grain
Day 2: 2 grains
Day 3: 3 grains ...

Exponential growth:

Day 1: 1 grain
Day 2: 2 grains
Day 3: 4 grains ...

On day 30, how many grains of rice do you have?

Day 30: 30 grains

Day 30: $1(2)^{30} =$

1,073,741,824 grains

$1(2)^{64}$

184,467,440,700,000,000 grains of rice

requiring 92,563,245,520 acres
(3,100,000 acres/yr USA) (29,859 yrs)

IWBAT evaluate exponential expressions and define the concepts of exponential growth and exponential decay.

Banking: Compound Interest

05/03/17

Evaluate the exponential expressions

$$f(x) = 2^x$$

$$g(x) = \left(\frac{1}{2}\right)^x$$

$$f(2) = 2^2 = 4$$

$$g(2) = \left(\frac{1}{2}\right)^2 = \frac{1^2}{2^2} = \frac{1}{4}$$

$$\left(\frac{1}{2}\right)^2 \approx (0.5)^2$$

$$f(8) = 2^8 = 256$$

$$g(8) = \left(\frac{1}{2}\right)^8 = \frac{1}{2^8} = \frac{1}{256}$$

$$f(2) * g(2) = 2^2 * \left(\frac{1}{2}\right)^2 = 2^2 * \frac{1}{2^2} = 1$$

Banking: Exponential Growth

$$f(t) = P\left(1 + \frac{r}{n}\right)^{nt}$$

Justina

$$f(6) = \$1000 \left(1 + \frac{.036}{4}\right)^{(4 \cdot 6)} = \$1239.90$$

Simple Interest

\$1072

As $n \Rightarrow \infty$,

$$f(t) = Pe^{rt}$$

$$f(x) = a * e^x$$

Justina

$$f(6) = \$1000 e^{(.036 \cdot 6)} = \$1241.10$$

IWBAT evaluate exponential expressions and define the concepts of exponential growth and exponential decay.

Banking: Exponential Growth

Practice: 4.2.2

IWBAT evaluate exponential expressions and define the concepts of exponential growth and exponential decay.

IWBAT

- practice using the formula $FV = P(1 + r/n)^{nt}$ and
- explore continuous compounding as an example of exponential growth.

4.3 Compound Interest

Define compound interest for a general number of periods.

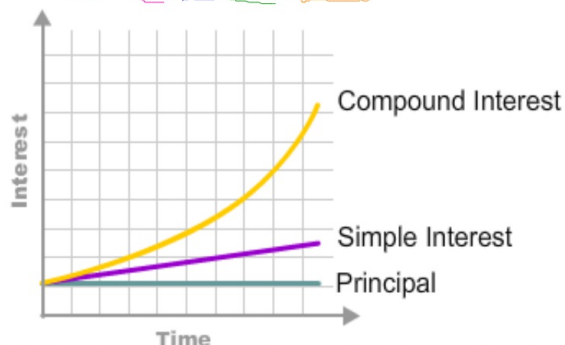
$$f(t) = P\left(1 + \frac{r}{n}\right)^{nt}$$

$$P = \$2,500$$

$$r = 4\%, 0.04$$

$$t = 10 \text{ yr.}$$

$$n = \underline{1}, \underline{4}, \underline{12}, \underline{365}$$



$$FV = P\left(1 + \frac{r}{n}\right)^{nt}$$

$$FV = 2500\left(1 + \frac{0.04}{1}\right)^{(1 \cdot 10)} =$$

$$FV = 2500\left(1 + \frac{0.04}{4}\right)^{(4 \cdot 10)} = \$3722.16$$

$$FV = 2500\left(1 + \frac{0.04}{12}\right)^{(12 \cdot 10)} = \$3727.08$$

$$FV = 2500\left(1 + \frac{0.04}{365}\right)^{(365 \cdot 10)} = \$3729.49$$

IWBAT practice using the formula $B = p(1 + r)^n$ and reading compound interest tables and explore continuous compounding as an example of exponential growth.

Banking: Compound Interest

Continuous compounding

$$f(t) = Pe^{rt} \quad FV = Pe^{rt}$$

$$P = \$2,500$$

$$r = 4\%$$

$$t = 10 \text{ yr.}$$

$$FV = 2500 e^{(.04 \cdot 10)}$$
$$= \$3729.56$$

IWBAT practice using the formula $B = p(1 + r)^n$ and reading compound interest tables and explore continuous compounding as an example of exponential growth.

Banking: Compound Interest

TVM solver (yellow calc.)

4%, 10yr, \$2500

n = years

APPS - Finance - TVM Solver

$$N = 10$$

$$I\% = 4$$

$$PV = -2500$$

$$PMT = 0$$

$$FV = \text{Alpha} + \text{Enter}$$

$$P/Y = 1$$

$$C/Y = 1^4$$

$$PMT = \boxed{END}$$

IWBAT practice using the formula $B = p(1 + r)^n$ and reading compound interest tables and explore continuous compounding as an example of exponential growth.

Banking: Compound Interest

Practice: 4.3.2

IWBAT practice using the formula $B = p(1 + r)^n$ and reading compound interest tables and explore continuous compounding as an example of exponential growth.

Banking: The Rule of 72 (and 69)

Calculate compound interest.

Julia invested \$1,234 in 1996 in a savings account with an annual interest rate of 1.2% compounded monthly. What should her account balance be in 2018?

$$\begin{aligned} & \text{TVM} \\ & N = 22 \\ & I\% = 1.2 \\ & PV = -1234 \\ & FV = \text{Alpha} + \text{Enter} \\ & C/Y = 12 \end{aligned} \quad \begin{aligned} f(t) &= \left(1 + \frac{r}{n}\right)^{nt} P \\ f(22) &= \left(1 + \frac{.012}{12}\right)^{(12 \cdot 22)} (1234) \\ &= \$1606.61 \end{aligned}$$

IWBAT

- understand when to use the rule of 72 versus the rule of 69
- use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

Banking: The Rule of 72 (and 69)

Calculate and estimate the amount of time for an investment to double.

How long will it take \$2,500 to double at an annual interest rate of 4%? Use the TVM solver.

$N = ?$	17.67 yr	17 yr 8 mo	3.8 yr
$I\% = 4$		$\rightarrow 20 \leftarrow$	
$PV = -2500$	-4500	1 -4500	
$FV = 5000$	9000	2 9000	
$C/Y = 1$			

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

Banking: The Rule of 72 (and 69)

Rule of 72

If you save your money in an account with annual interest rate r , you can approximate the number of years needed to double your principal by

$$\frac{72}{r \cdot 100}$$

This approximation works for compounding periods up to weekly. *annually, monthly, bi-weekly, quarterly*

How long will it take \$2,500 to double at an annual interest rate of 4%?

$$\frac{72}{4} = 18 \text{ yr}$$

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

Banking: The Rule of 72 (and 69)

To have \$1,000,000 by your 60th birthday, how much do you need to invest at 6% interest at age 18? Solve using the Rule of 72.

$\frac{72}{6} = 12 \text{ yr}$

60	\$1,000,000
48	\$500,000
36	\$250,000
24	\$125,000
18	~\$70,000
12	\$62,500

$N = 42$
 $I\% = 6$
 $PV = ?$
 $FV = 1,000,000$
 $C/Y = 1$

\$86,527.40

Double

half

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

Banking: The Rule of 72 (and 69)

Rule of 69

If you save your money in an account with annual interest rate r , you can approximate the number of years needed to double your principal by

$$\frac{69}{r \cdot 100}$$

Use this approximation for **daily** and **continuous** compounding.

$$365, e^{rt}$$

$$\frac{69}{4} = 17.25\%$$

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

Banking: The Rule of 72 (and 69)

Inflation (reduction in buying power)

Want between 1-3%

$$\frac{72}{R} \approx 13$$

$$R = \frac{72}{13}$$

Use the Rule of 72 to calculate how long it will take for your buying power to halve with a 1.9% rate of inflation. Please answer in years and months.

$$\frac{72}{1.9} = 37.9\%$$

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

Banking: The Rule of 72 (and 69)

Practice: 4.4.2

IWBAT understand when to use the rule of 72 versus the rule of 69 and use the inflation rate to calculate and estimate the time it takes for a person's buying power to halve.

Banking: Checking Accounts

**Explain when to use the Rule of 72
and when to use the Rule of 69.**

Use the Rule of 69 with daily and continuous compounding to estimate the time needed for doubling our money.

Rule of 72 for compounding weekly up to annual compounding for the same purpose.

Also, the Rule of 72 is used to estimate inflation.

IWBAT understand how checking accounts work, including interest and how to write a check.

Banking: Checking Accounts

What is a checking account? Why use one?

you can easily deposit and withdraw money
you can use it to buy things and pay bills

IWBAT understand how checking accounts work, including interest and how to write a check.

Banking: Checking Accounts

Understand the fees associated with a checking account.

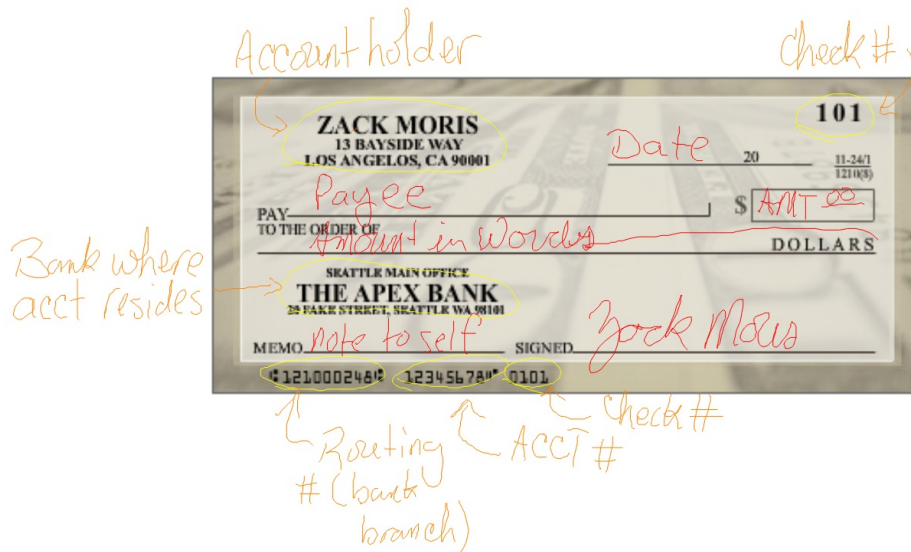
Service charge
Overdraft
Replacement card
designer card
ATM
no direct deposit
teller
per check fee

paper statement
check images
fancy checks

IWBAT understand how checking accounts work,
including interest and how to write a check.

Banking: Checking Accounts

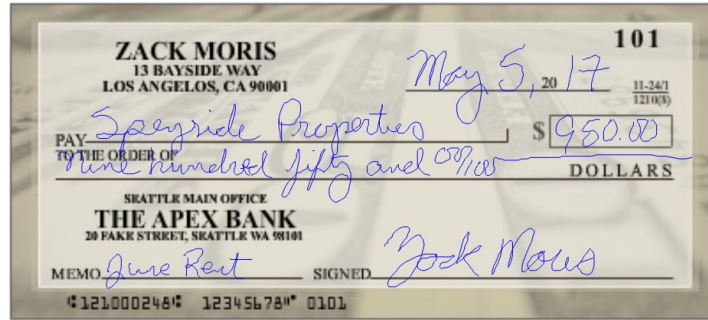
Parts of a check



IWBAT understand how checking accounts work,
including interest and how to write a check.

Banking: Checking Accounts

Your \$950 rent is due on the first of the month to Speyside Properties. Fill out the check for next month's rent payment.



IWBAT understand how checking accounts work, including interest and how to write a check.

Banking: Checking Accounts

Check register

Check Number	Date	Description of Transaction	Payment/Debit (-)	Fee	Deposit/Credit (+)	Balance
101	5/5	Speyside P. Rent	950.00			2874.26

Number	Date	Transaction	Withdrawal	✓	Deposit	Balance
101	5/5	Rent Speyside Prop.	950.00			2874.26
	5/5	Belden Const Paycheck			1128.32	1745.94

Record the rent check in your register.
Your previous balance was \$2874.26.

IWBAT understand how checking accounts work, including interest and how to write a check.

Banking: Checking Accounts *FOR DEPOSIT ONLY*

Check endorsements



Pay to the order of

IWBAT understand how checking accounts work, including interest and how to write a check.

Banking: Checking Accounts

Deposit slip

The image shows a deposit slip form for Mike Melosh, dated 5/8/17. The form includes fields for the depositor's name, date, and account number. It also has a section for listing checks and their amounts, a subtotal, and a section for cash received. The form is labeled 'CHECKING DEPOSIT' on the left side.

DEPOSIT TO THE ACCOUNT OF
NAME: Mike Melosh
DATE: 5/8/17
903
YOUR BANK
DEPOSITS SUBJECT TO CORRECTION BY PROOF DEPARTMENT
ALL ITEMS CREDITED SUBJECT TO THE FINAL PAYMENT
ACCOUNT NUMBER: * 1 2 3 4 5 6 7 8
⑆ 987654321 ⑆

CHECKS

CHECK NUMBER	AMOUNT
101	13.00
102	13.00
103	13.00
SUBTOTAL	39.00
LESS CASH RECEIVED	
TOTAL	39.00

CASH ☒ **CASH**

TOTAL \$ 39.00

IWBAT understand how checking accounts work, including interest and how to write a check.

Banking: Balancing your Checkbook

**Fill out the check register completely
using the sample bank statement.**

1/1 Previous Balance

312.21

Banking: Balancing your Checkbook


02/28/17

IWBAT reconcile a checkbook and explore
some common accounting errors and how to
detect them.

Banking: Balancing your Checkbook

Learning how to read bank statements.

Cleared checks
- already removed
the \$ from
your acct.

 FIRST BANK OF APEX 1234 Main St. City, State		CHECKING ACCOUNT STATEMENT Page : 1 of 1			
JOHN DOE 1111 Balance St. City, State		Statement period 2010-10-09 to 2010-11-08		Account No. 123-45-678	
Date	Description	Ref.	Debits	Credits	Balance
2010-10-08	Previous balance				.55
2010-10-14	Payroll Deposit - HOTEL			694.81	695.36
2010-10-14	Web Bill Payment - MASTERCARD	9685	200.00		495.36
2010-10-16	ATM Withdrawal - INTERAC	3990	21.25		474.11
2010-10-16	Fees - Interac		1.50		???
*** Totals ***			???	???	

0017
0018X
0019

IWBAT reconcile a checkbook and explore some common accounting errors and how to detect them.

Banking: Balancing your Checkbook

Reconciliation To get your checkbook and the bank statement to agree

What you need to reconcile:

1. deposits (direct deposit or otherwise)
2. interest
3. checks cleared
4. outstanding checks
5. bank fees
6. cash withdrawals
7. online bill payments
8. debit card transactions
9. transfer of funds

IWBAT reconcile a checkbook and explore some common accounting errors and how to detect them.

Banking: Balancing your Checkbook

Reconciling tools

Verifying That Two Groups of Numbers May Add Up to the Same Value

1. Add all *digits* of all the numbers in each column.
2. Do this again if needed until you reach a single digit.
3. Compare the two single digits you get in the end.

If they do not agree, then the numbers in the two columns cannot add up to the same value.

Imagine the numbers in the first column are 23, 14, and 9, and the second column contains 20 and 27. You want to know if the columns are balanced — that is, do the numbers in the first column add up to 47?

$$\begin{array}{r} 23 \ 5 \ 20 \ 2 \\ 14 \ 5 \ 27 \ 9 \\ 9 \\ \hline 19 \qquad 11 \\ 10 \qquad 2 \\ 1 \end{array}$$

IWBAT reconcile a checkbook and explore some common accounting errors and how to detect them.

Banking: Balancing your Checkbook

Transposed numbers

Two digits have switched places

Columns should add to the same total, but do not. Subtract column sums. If the difference is divisible by 9, look for transposed numbers (e.g. 34 instead of 43).

$$\begin{array}{r} 315 \quad 513 \\ 666 \quad 666 \\ 478 \quad 478 \\ \hline 1459 \quad 1657 \end{array}$$

If divisible by 9, we have transposed digits

$\textcircled{198}$ $\frac{18}{9} = 2$

IWBAT reconcile a checkbook and explore some common accounting errors and how to detect them.

Banking: Balancing your Checkbook

Practice: 4.6.2

IWBAT reconcile a checkbook and explore some common accounting errors and how to detect them.

Banking: Comparing Checking Accounts

What does it mean to reconcile your checkbook?

To check your check register with your bank statement to see if they agree.

IWBAT

- understand the various fees that may be associated with a checking account
- decide whether a checking account is appropriate given a person's particular needs.

Banking: Comparing Checking Accounts

Compare two checking accounts based on various factors.

- Debit card?
- Per check fee?
- ATM fee?
- Monthly service fee?
 - Minimum balance?
 - Direct deposit?
- Interest?
 - Final balance?
 - Average monthly balance?

IWBAT understand the various fees that may be associated with a checking account and decide whether a checking account is appropriate given a person's particular needs.

Banking: Comparing Checking Accounts

Typical account features

Account Features	Basic Free Checking	Student Checking	Regular Checking	Interest Checking
ATM access	FREE ✓	FREE ✓	FREE ✓	FREE ✓
Online Bill Pay E-mail Alerts Online Check Images Online Statements	FREE ✓	FREE ✓	FREE ✓	FREE ✓
Earns Interest				YES ✓
Monthly Service Fee	None with direct deposit, or 5 or more debit card purchases during each statement period; otherwise \$6	None, must be a student 18+ years old	Waived with \$1000 minimum checking balance; otherwise \$12	Waived with \$1500 minimum checking balance; otherwise \$20
Debit Card	FREE ✓	FREE ✓	FREE ✓	FREE ✓

Fractional reserve banking -

A type of banking system in which only a fraction of bank deposits are backed by actual cash on hand. The rest of the money deposited is not available for immediate withdrawal.

IWBAT understand the various fees that may be associated with a checking account and decide whether a checking account is appropriate given a person's particular needs.

Banking: Comparing Checking Accounts

If Bank A charges a monthly service fee of \$2.50 and a per-check fee of \$0.15, while Bank B charges a monthly service fee of \$4 and a per-check fee of \$0.05, which bank will charge a customer more in fees if she writes 18 checks per month, and by how much? Is this bank ever a better choice?

$$A \quad .15(18) + 2.50 = \$5.20$$

$$B \quad .05(18) + 4.00 = \$4.90$$

Bank A charges \$0.30 more.

<18, Bank A less exp.

$$.15x + 2.50 = .05x + 4$$

$$-.05x \quad -.05x$$

$$.10x + 2.50 = 4$$

$$-.2.5 \quad -.2.5$$

$$.10x = 1.5$$

$$(.10x = 1.5) \div .10$$

x = 15 checks

Bank A is less expensive if you write <15 checks per month.

IWBAT understand the various fees that may be associated with a checking account and decide whether a checking account is appropriate given a person's particular needs.

Banking: Comparing Checking Accounts

Practice: 4.7.2

IWBAT understand the various fees that may be associated with a checking account and decide whether a checking account is appropriate given a person's particular needs.

Banking: Savings Accounts

Explain the difference between a savings account and a checking account.

A savings acct. is for keeping money you are not going to use and checking is for money you are going to use. Checking: Card, Savings and checking don't have to be linked, Savings: interest

What features would a good checking account for you include?

interest

no minimum transactions

free ATMs world-wide

no fee to replace card

Chip card

free checks

no fees

IWBAT

- work with APR and APY to calculate interest earned from a savings account
- perform calculations involving deposits and withdrawals.

Banking: Savings Accounts

APR vs. APY

APR is the annual percentage *rate*. It is the annual rate of interest without taking into account the number of compounding periods.

APY is the annual percentage *yield*. This is a measure of the full amount of money earned over a year, which includes any compound interest.

IWBAT work with APR and APY to calculate interest earned from a savings account and perform calculations involving deposits and withdrawals.

Banking: Savings Accounts

APY is higher than **APR** if there is more than one compounding period in a year, so *lenders* often express their interest rates in the form of APR since it is lower.

Borrowers (such as banks and other savings institutions) often express interest rates in APY since it is higher.

$r = \text{APR}$

$$\text{APY} = \left(1 + \frac{r}{n}\right)^n - 1$$

15%
Quarterly

$$\text{APY} = \left(1 + \frac{.15}{4}\right)^4 - 1$$
$$= 0.15865$$

15.87%

IWBAT work with APR and APY to calculate interest earned from a savings account and perform calculations involving deposits and withdrawals.

Banking: Savings Accounts

"interest calculated on an annual basis, accrued daily, and paid monthly."

P. APY

7) The beginning balance of Otto's savings account for the month of May was \$1800, and it remained this way for the first 12 days of the month. On May 13, Otto made a withdrawal of \$400, so his balance changed, and it remained the same for a total of 8 days. On May 21, Otto made a deposit of \$1200, so his balance changed again, and it remained the same for a total of 11 days to finish out the month. If Otto's savings account has an APR of 7.3%, calculates interest daily, and pays interest at the end of the month, how much did Otto earn in interest in the month of May?

$$\begin{aligned} & \$1800 \left[\left(1 + \frac{0.073}{365}\right)^{12} - 1 \right] = \$4.32 \\ & \quad \sim 400 \\ & \$1400 \left[\left(1 + \frac{0.073}{365}\right)^8 - 1 \right] = \$2.24 \\ & \quad + 1200 \\ & \$2600 \left[\left(1 + \frac{0.073}{365}\right)^{11} - 1 \right] = \$5.73 + \\ & \quad \quad \quad \$12.29 \end{aligned}$$

IWBAT work with APR and APY to calculate interest earned from a savings account and perform calculations involving deposits and withdrawals.

Banking: Savings Accounts

Practice: 4.8

$$\begin{aligned} \text{Future value} &= P + I \\ I &= P \left[\left(1 + \frac{R}{n} \right)^n - 1 \right] \\ FU &= P \left(1 + \frac{R}{n} \right)^n \end{aligned} \quad \left. \vphantom{\begin{aligned} I &= P \left[\left(1 + \frac{R}{n} \right)^n - 1 \right] \\ FU &= P \left(1 + \frac{R}{n} \right)^n \end{aligned}} \right\} \text{full year}$$
$$\begin{aligned} FU &= P \left(1 + \frac{R}{n} \right)^T \\ I &= P \left[\left(1 + \frac{R}{n} \right)^T - 1 \right] \end{aligned} \quad \left. \vphantom{\begin{aligned} FU &= P \left(1 + \frac{R}{n} \right)^T \\ I &= P \left[\left(1 + \frac{R}{n} \right)^T - 1 \right] \end{aligned}} \right\} \text{any other time length}$$

IWBAT work with APR and APY to calculate interest earned from a savings account and perform calculations involving deposits and withdrawals.

Banking: Comparing Savings Accounts

What is the difference between APR and APY?

APY is higher than APR when we compound more than once per year

IWBAT understand how FDIC insurance works and examine various types of savings accounts based on risk and liquidity.

Banking: Comparing Savings Accounts

Understanding how FDIC insurance works.

The FDIC insures deposits to all types of accounts including:

- checking accounts
- basic savings account
- money market
- certificate of deposit (CD)

<https://www.fdic.gov/deposit/covered>

What is covered and how much?

per Bank {	Joint account	\$250,000	per acct. holder
	Single acct.	\$250,000	
	Retirement (self-directed)	\$250,000	

NCUA insurance for credit unions

Banking: Comparing Savings Accounts

If you have \$400,000, how should you divide it up?
Or should you?

one joint acct (2 ppl)

Single acct. \$200,000
joint \$200,000

Single \$200,000
retirement \$200,000

Banking: Comparing Savings Accounts

Liquidity - the ability to access cash quickly

Types of Savings Accounts

- piggy bank
- basic savings account
- money market savings
- certificate of deposit (CD)
- savings bond



Increasing
Interest %



Increasing
Liquidity

General rule: the higher the interest rate, the lower the liquidity

IWBAT compare two savings accounts based on various factors and examine various types of savings accounts based on risk and liquidity.

Banking: Comparing Savings Accounts

Practice: 4.9.2

IWBAT compare two savings accounts based on various factors and examine various types of savings accounts based on risk and liquidity.

4.10 Savings & Checking Wrap up

03/07/17

How does FDIC insurance work?

IWBAT demonstrate my proficiency in this unit on practice problems before the unit test.

Banking: Savings & Checking Wrap up

Complete Practice 4.10.2

Simple Interest

$$I = Prt \quad FV = P + Prt$$

Compound Interest

$$A(t) = P(1 + r/n)^{n*t}$$

$$A(t) = P\left(1 + \frac{r}{n}\right)^{n*t}$$

$$APY = (1 + r/n)^n - 1$$

$$APY = \left(1 + \frac{r}{n}\right)^n - 1$$

#4 graph on calculator + transfer to your paper

IWBAT demonstrate my proficiency in this unit on practice problems before the unit test.

Banking: Savings & Checking Wrap up
Final questions on 4.10.2?

03/08/17

IWBAT demonstrate proficiency on my unit test.

Banking: Savings & Checking Wrap up

03/09/17

Complete Unit Test 4.10.5

IWBAT demonstrate proficiency on my unit test.